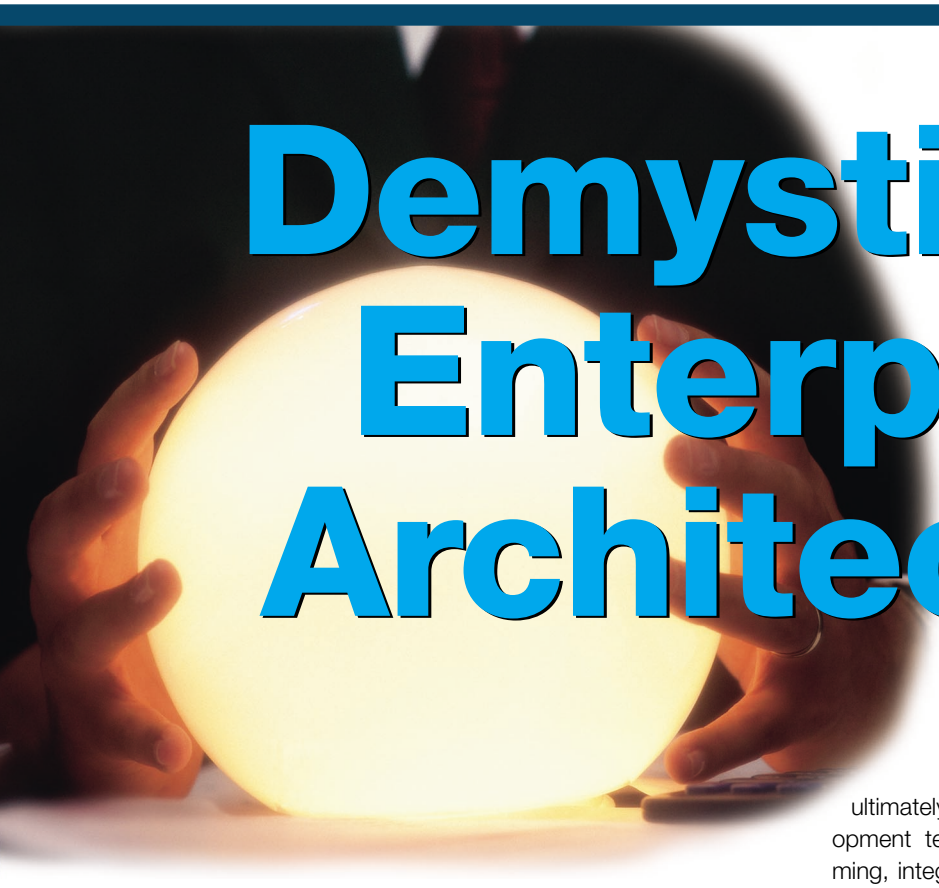

Demystifying Enterprise Architecture

Maricopa County's Integrated Criminal Justice System Phase II

The opening of a new jail facility in September 2004 and the addition of major new software and integration features for subject intake processing to the justice system marked the opening of Phase II of Maricopa County's Integrated Criminal Justice Information System (ICJIS).

Maricopa County initiated ICJIS in 2003 because its explosive growth was matched by a 56 percent criminal case filing increase over the preceding six years. However, the county's diverse IT environment—including a variety of hardware, operating systems and databases, along with many ad hoc interfaces, replicated functions, in a paper-based environment—meant that a modernized IT infrastructure was essential.

"We faced a major criminal justice supply chain challenge that included five justice agencies, including the sheriff, county attorney, courts, clerk, and public defender, using diverse information technology infrastructures," said Larry Bernosky, data integration manager for the project.

The county's strategic direction is to move away from agency-unique and traditional application development methods toward agency convergence and ultimately enterprise convergence, where the development technology supports rules-based programming, integrated business and data models, reusable code, and shared components.

To realize this vision the county defined an enterprise approach that focused on cross-organization collaboration, integrated modeling, data and metadata standardization, data-process synchronization, and lifecycle management. It was critical that the methods and technology selected provide a repeatable experience and results for the users, analysts and developers as the ICJIS moved from phase to phase.

Initially, the team developed an Integrated Criminal Justice Joint Applied Development (JAD) process, fostering a team environment for the five agencies and their team members. As part of the process, the team established six goals, enabling cross-agency communication for complex business processes:

- building a Justice business process model
- building a Justice data model and common data dictionary
- developing a Common Case Number application function
- developing a Business Decisions document
- readying the infrastructure to handle all subsequent phases of the project

"It is unimaginable to undertake this kind of complex cross-agency integration project without tools such as Computer Associates' AllFusion Process Modeler and AllFusion ERwin Data Modeler," agreed Bernosky.

Phase I targeted the key business problem of mul-

tiple identification and numbering systems for subjects, which was confusing for all parties—victims, witnesses, subjects and their attorneys—and resulted in case-processing delays and complex case-flow processes.

The Common Case Number (CCN) application provides a common unique identifier at all justice agencies, reduces delay and errors in case flow and processing, and improves victims' and witnesses' relationships with the criminal justice system.

To achieve the most effective project start-up, team members with expertise in modeling or the criminal justice business were first to be trained on the modeling tools and used the tools from the beginning. Computer Associates provided some short-term consulting services to augment the training and shorten the learning curve as well.

The ICJIS development process is a model-driven approach. The industry-standard notational capabilities and modeling methods built into the AllFusion modeling technology provide an easy-to-use and rigorous means of supporting the definition, description and design of the business processes and related business information necessary to implement the CCN system. The modeling technology and techniques also serve as the catalyst for effective cross-agency collaboration through the development of a common business and information language.

The modeling methods and technology contained in the AllFusion modeling tools enable clear and concise capture of system information. At the top level, a business contextual diagram describes the business need, focused on how the business works. This context diagram describes objective and scope, inputs and outputs, and controls and mechanisms and provides the framework for more detailed process models that describe operational tasks and business logic. It also links with the data model to ensure synchronization of process and data in the implemented system.

The Logical Data Model, developed in conjunction with the business and process models, gives the view of business information requirements and is used for input to use cases- and rules-based programming as well as physical database model generation and the creation and maintenance of an Enterprise Data Model—a standard set of data elements that are shared across several agencies.

The implemented CCN application authenticates the agencies and transactions that interact with the CCN application for security purposes, validates a CCN request transaction—which includes performing a required fields check and, in some cases, a duplicate record check—and assigns a valid CCN for a validated request transaction. CCN is used to store all of the persisting data associated with the CCN application and distributes the results to the originating user.

The Common Data Dictionary, the information source of shared agency data, is the means to facilitating data sharing with external organizations and the key tool for developing ICJIS enterprise logical data models. It includes common terms with common definitions and compatible physical data characteristics, standard sets of validation rules and valid values, and a comprehensive set of metadata, including terms and definitions established by state and federal organizations.

These two elements are the backbone of Phase II, which provides pre-booking functions for the sheriff's department and release information from the court to the public defender's office. To accomplish these Phase II objectives, the ICJIS team modified the Phase I business processes and updated the Common Data Dictionary.

The ICJIS team hoped to improve cross-agency collaboration and integration with improved or new business processes. The model-driven approach provided clear benefits to justice integration because it:

- Facilitated documentation of complex business operations
- Provided structure, discipline and collaboration
- Reduced design and development time
- Modeling tools linked with use cases and application tools
- Integrated data models from different projects
- Enabled component reuse

Phase II showed that the model-driven approach is repeatable and retained the productivity and quality gains of Phase I. As a result of these successes, Maricopa County has several projects underway that are using AllFusion tools, the ICJIS process models and the Common Data Dictionary.

These projects include more strategic applications and integrations for ICJIS and an enterprise-wide logical data model. At the methodology and tool level, ICJIS has also been developing standard guidelines for model development and usage and integrating the modeling process into justice-agency-wide project flow.

The primary lesson of these projects is that a model-driven approach not only provides a strong technical solution but truly enables cross-organizational collaboration—a major factor of success. ▲